DEFENSE INFORMATION SYSTEMS AGENCY
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IN REPLY REFER TO: Joint Interoperability Test Command (JTE) **27 Apr 12**

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of the Juniper Networks MX Series from Software Release Junos™ 10.0R4.7 to Junos™ 10.0s19 Customer Edge Router (CER)

References: (a) DoD Directive 4630.05, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01E, "Interoperability and Supportability of Information Technology and National Security Systems," 15 December 2008
(c) through (h), see Enclosure

1. References (a) and (b) establish the Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.

2. The Juniper Networks MX480 with Software Release Junos™ 10.0R4.7 is hereinafter referred to as the System Under Test (SUT). The SUT meets all of its critical interoperability requirements for joint use within the Defense Information System Network (DISN) as a High Availability CER. When a CER meets the High Availability CER requirements, it is also certified as a Medium Availability with System Quality Factors (SQF), Medium Availability without SQF, and Low Availability CER. The SUT met all four categories of CER with a single chassis. The SUT meets the critical interoperability requirements set forth in Reference (c), using test procedures derived from Reference (d). The SUT met the critical interoperability requirements for the following interfaces: Institute of Electrical and Electronics Engineers (IEEE) 802.3i (10BaseT), IEEE 802.3u (100BaseT), and IEEE 802.3ab (1000BaseT). The MX240 and MX960 routers employ the same software and similar hardware as the MX480 router. The JITC analysis determined these systems to be functionally identical to the SUT for interoperability certification purposes and therefore, they are also certified for joint use. No other configurations, features, or functions, except those cited within this memorandum, are certified by JITC. This certification expires upon changes that could affect interoperability, but no later than 19 April 2014, which is three years from the date of the Unified Capabilities (UC) Approved Products List (APL) memorandum.

3. The extension of this certification is based upon Desktop Review (DTR) 1. The original certification is based on interoperability testing conducted by JITC, review of the vendor's Letters of Compliance (LoC), and DISA Information Assurance (IA) CA approval of the IA configuration. Interoperability testing was conducted by JITC, Fort Huachuca, Arizona, from 27 December 2010 through 7 January 2011 and documented in Reference (e). Review of the vendor's LoC was completed on 11 March 2011. The DISA CA reviewed the IA Assessment Reports for the SUT, References (f), (g), and (h), and provided a positive recommendation on

19 April 2011. The acquiring agency or site will be responsible for the DoD Information Assurance Certification and Accreditation Process (DIACAP) accreditation. This DTR was requested to include Software Release Junos™ 10.0s19, which updates Software Release Junos™ 10.0R4.7 with IA fixes to address an Information Assurance Vulnerability Alert (IAVA). DISA-led IA test teams conducted Verification and Validation testing on the SUT on 30 January 2012 and verified that Software Release Junos™ 10.0s19 resolved the IA/security issues related to the IAVA. The DISA CA provided a positive recommendation on 13 April 2012 for Software Release Junos™10.0s 19. JITC analysis also determined that this software update does not affect Assured Services features of the SUT. Therefore, JITC approves this DTR.

4. The interface, Capability Requirement (CR) and Functional Requirement (FR), and component status of the SUT are listed in Tables 1 and 2. The threshold CRs/FRs for CERs are established by in Section 5.3.2.14 of Reference (c) and were used to evaluate the interoperability of the SUT. Reference (e) provides a detailed list of the interface, capability, and functional requirements.

Table 1. SUT Interface Interoperability Status

Interface	Critical	UCR Reference	Threshold CR/FR Requirements (See note.)	Status	Remarks
ASLAN Interfaces					
10Base-X	Yes	5.3.2.4.2 5.3.2.14.9	1-3	Certified	The SUT met all critical CRs and FRs for the IEEE 802.3i (10BaseT) interface.
100Base-X	Yes	5.3.2.4.2 5.3.2.14.9	1-3	Certified	The SUT met all critical CRs and FRs for the IEEE 802.3u (100BaseT) interface.
1000Base-X	No	5.3.2.4.2 5.3.2.14.9	1-3	Certified	The SUT met all critical CRs and FRs for the IEEE 802.3ab (1000BaseT) interface.
WAN Interfaces					
10Base-X	Yes	5.3.2.4.2 5.3.2.14.9	1-3	Certified	The SUT met all critical CRs and FRs for the IEEE 802.3i (10BaseT) interface.
100Base-X	Yes	5.3.2.4.2 5.3.2.14.9	1-3	Certified	The SUT met all critical CRs and FRs for the IEEE 802.3u (100BaseT) interface.
1000Base-X	No	5.3.2.4.2 5.3.2.14.9	1-3	Certified	The SUT met all critical CRs and FRs for the IEEE 802.3ab (1000BaseT) interface.
DS1	No	5.3.2.14.9	1-2	Not Tested	The SUT does not support this interface and it is not required.
DS3	No	5.3.2.14.9	1-2	Not Tested	The SUT does not support this interface and it is not required.
E1	No	5.3.2.14.9	1-2	Not Tested	The SUT does not support this interface and it is not required.
OC-X	No	5.3.2.14.9	1-2	Not Tested	This interface was not tested and is not required.
Network Management Interfaces					
10Base-X	Yes	5.3.2.4.4	4	Certified	The SUT met all critical CRs and FRs for the IEEE 802.3i (10BaseT) interface. This was met by the vendor's LoC.
100Base-X	Yes	5.3.2.4.4	4	Certified	The SUT met all critical CRs and FRs for the IEEE 802.3u (100BaseT) interface. This was met by the vendor's LoC.
1000Base-X	No	5.3.2.4.4 5.3.2.14.9	4	Certified	The SUT met all critical CRs and FRs for the IEEE 802.3ab (1000BaseT) interface. This was met by the vendor's LoC.

Table 1. SUT Interface Interoperability Status (continued)

NOTE: The annotation of 'required' refers to a high-level requirement category. The applicability of each sub-requirement is provided in Reference (e).

LEGEND:

ASLAN	Assured Services Local Area Network	IEEE	Institute of Electrical and Electronics Engineers
CER	Customer Edge Router	LoC	Letters of Compliance
CR	Capability Requirement	OC	Optical Carrier
DS1	Digital Signal Level 1 (1.544 Mbps)	SUT	System Under Test
DS3	Digital Signal Level 3	UCR	Unified Capabilities Requirements
FR	Functional Requirement	WAN	Wide Area Network

Table 2. SUT CRs and FRs Status

CR/FR ID	Capability/ Function	Applicability (See note 1.)	UCR Reference	Status	Remarks
Product Interface Requirements					
1	Internal Interface Requirements	Required	5.3.2.4.1	Met	The SUT met all critical CRs and FRs.
	External Physical Interfaces between Network Components	Required	5.3.2.4.2	Met	The SUT met all critical CRs and FRs.
	IP Queue Control Capabilities	Required	5.3.2.17.3.4.2. 12 para 1	Met	The SUT met all critical CRs and FRs.
	Differentiated Services Code Point	Required	5.3.3.3.2	Met	The SUT met all critical CRs and FRs.
	VVoIP Per-Hop Behavior Requirements	Required	5.3.3.3.3	Met	The SUT met all critical CRs and FRs.
	Traffic Conditioning Requirements	Required	5.3.3.3.4	Met	The SUT met all critical CRs and FRs.
Customer Edge Router Requirements					
2	Traffic Conditioning	Required	5.3.2.14.1	Met	The SUT met all critical CRs and FRs.
	Differentiated Services Support	Required	5.3.2.14.2	Met	The SUT met all critical CRs and FRs.
	Per Hop Behavior Support	Required	5.3.2.14.3	Met	The SUT met all critical CRs and FRs.
	Interface to the LSC/MFSS for Traffic Conditioning	Conditional	5.3.2.14.4	Not Tested	The SUT does not support this feature and it is not required.
	Interface to the LSC/MFSS for Bandwidth Allocation	Conditional	5.3.2.14.5	Not Tested	The SUT does not support this feature and it is not required.
	Availability	Required	5.3.2.14.7	Met	The SUT met all critical CRs and FRs. The SUT met High Availability CER requirements.[2]
	Packet Transit Time	Required	5.3.2.14.8	Met	The SUT met all critical CRs and FRs.
	CER Interfaces and Throughput Support	Required	5.3.2.14.9	Met	The SUT met all critical CRs and FRs.
	Assured VVoIP Latency	Required	5.3.3.4	Met	The SUT met all critical CRs and FRs.[5]
	Assured VVoIP CE Latency	Required	5.3.3.4.2	Met	The SUT met all critical CRs and FRs.[5]
	Assured VVoIP CER-to-CER Latency	Required	5.3.3.4.4	Met	The SUT met all critical CRs and FRs.[5]
	Assured VVoIP CER-to-CER Jitter	Required	5.3.3.5.3	Met	The SUT met all critical CRs and FRs.[5]
	Assured VVoIP CE Jitter	Required	5.3.3.5.4	Met	The SUT met all critical CRs and FRs.[5]
	Assured VVoIP CER-to-CER Packet Loss	Required	5.3.3.6.3	Met	The SUT met all critical CRs and FRs.[5]
	Assured VVoIP CE Packet Loss	Required	5.3.3.6.4	Met	The SUT met all critical CRs and FRs.[5]
	End-to-End Availability	Required	5.3.3.12.1	Met	The SUT met all critical CRs and FRs.[5]
	Availability Design Factors	Required	5.3.3.12.2	Met	The SUT met all critical CRs and FRs.[5]

Table 2. SUT CRs and FRs Status (continued)

CR/FR ID	Capability/ Function	Applicability (See note 1.)	UCR Reference	Status	Remarks
Customer Edge Router Requirements (continued)					
2	Product Quality Factors	Required	5.3.3.12.3	Met	The SUT met all critical CRs and FRs.[5]
	Layer 1 – Physical Layer	Required	5.3.3.12.4.1	Met	The SUT met all critical CRs and FRs.[5]
	Layer 2 – Data Link Layer	Required	5.3.3.12.4.2	Met	The SUT met all critical CRs and FRs.[5]
	Provisioning	Required	5.3.3.13	Met	The SUT met all critical CRs and FRs.[5]
	Interchangeability	Required	5.3.3.14	Met	The SUT met this requirement with Static Routing, BGP-4, IS-IS, OSPFv2, OSPFv3, and VRRP.
	Voice Grade of Service	Required	5.3.3.15	Met	The SUT met all critical CRs and FRs.[5]
	Survivability	Required	5.3.3.16	Not Tested	This is an E2E engineering requirement and is not testable in a lab environment.[3]
Internet Protocol Version 6 Requirements					
3	IPv6	Required	5.3.3.10	Met	The SUT met all critical CRs and FRs with the following minor exception: The SUT does not fully support IPv4 functions in IPv6.[4]
	Product Requirements	Required	5.3.5.4	Met	The SUT met all critical CRs and FRs.
Network Management Requirements					
4	VVoIP NMS Interface Requirements	Required	5.3.2.4.4	Met	The SUT met all critical CRs and FRs for the 10/100/1000BaseT interfaces. This was met by vendor's LoC.
	NM Requirements for CERs	Required	5.3.2.18.1	Met	The SUT met all critical CRs and FRs for the 10/100/1000BaseT interfaces. This was met by vendor's LoC.
	Network Management	Required	5.3.2.14.6	Met	The SUT met all critical CRs and FRs for the 10/100/1000BaseT interfaces. This was met by vendor's LoC.

NOTES:

1. The annotation of 'required' refers to a high-level requirement category. The applicability of each sub-requirement is provided in Reference (e).
2. If a CER meets the High Availability CER requirements, it meets all of the lesser requirements for Medium Availability with and without SQF and Low Availability. To meet the High Availability and Medium Availability with SQF, the SUT needs to be in a dual chassis configuration.
3. This is an E2E engineering requirement and, due to variations in network architectures, it could not be accurately tested in a lab environment. To meet E2E requirements, the SUT must be deployed in accordance with its deployment guide and the engineering guidelines provided in UCR Section 5.3.3.
4. The UCR 2008, Change 2, Section 5.3.5.4, paragraph 1.4, states that the products which provide a function in IPv4 will have to provide the same function in a seamless manner in IPv6. Per the vendor's LoC they stated that they partially comply with this requirement, and will determine exactly what the deltas are between Ipv4 and IPv6. In the interim this discrepancy was adjudicated by DISA on 22 April 2011 as having a minor operational impact since interoperability testing did not identify any critical anomalies due to this discrepancy.
5. This requirement was verified in an operational emulated environment. To meet E2E requirements, the SUT must be deployed in accordance with its deployment guide and the engineering guidelines provided in UCR Section 5.3.3.

Table 2. SUT CRs and FRs Status (continued)

LEGEND:

BGP	Border Gateway Protocol	LoC	Letters of Compliance
CE	Customer Edge	LSC	Local Session Controller
CER	Customer Edge Router	MFSS	Multifunction Softswitch
CR	Capability Requirement	NM	Network Management
DISA	Defense Information Systems Agency	NMS	Network Management System
E2E	End-to-End	POA&M	Plan of Actions and Milestones
EBC	Edge Boundary Controller	OSPF	Open Shortest Path First
FR	Functional Requirement	SQF	System Quality Factors
ID	Identification	SUT	System Under Test
IP	Internet Protocol	UCR	Unified Capabilities Requirements
IPv4	Internet Protocol version 4	VRRP	Virtual Router Redundancy Protocol
IPv6	Internet Protocol version 6	VVoIP	Voice and Video over Internet Protocol
IS-IS	Intermediate System-Intermediate System		

5. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi. Due to the sensitivity of the information, the Information Assurance Accreditation Package (IAAP) that contains the approved configuration and deployment guide must be requested directly through government civilian or uniformed military personnel from the Unified Capabilities Certification Office (UCCO), e-mail: ucco@disa.mil.

6. The JITC point of contact is Mr. Khoa Hoang, DSN 879-4376, commercial (520) 538-4376, FAX DSN 879-4347, or e-mail to khoa.hoang@disa.mil. The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The Tracking Number for the MX480 is 1020801. The Tracking Number for the MX240 is 1016502. The Tracking Number for the MX960 is 1020802.

FOR THE COMMANDER:

Enclosure a/s

For RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

JITC Memo, JTE, Extension of the Special Interoperability Test Certification of the Juniper Networks MX Series from Software Release Junos™ 10.0R4.7 to Junos™ 10.0s19 Customer Edge Router (CER)

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Defense Information Systems Agency, GS23

ADDITIONAL REFERENCES

(c) Office of the Assistant Secretary of Defense, "Department of Defense Unified Capabilities Requirements 2008, Change 2," 22 January 2010
(d) Joint Interoperability Test Command, "Unified Capabilities Test Plan (UCTP)," Draft
(e) Joint Interoperability Test Command, Memo, JTE, "Special Interoperability Test Certification of the Juniper Networks MX Series with Software Release Junos™ 10.0R4.7 Customer Edge Router (CER)," 15 July 2011
(f) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Juniper Modular Expansion (MX) 480 Juniper Operating System (JUNOS) 10.0s19 (Tracking Number 1020801)," Draft
(g) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Juniper Modular Expansion (MX) 240 Juniper Operating System (JUNOS) 10.0s19 (Tracking Number 1016502)," Draft
(h) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Juniper Modular Expansion (MX) 960 Juniper Operating System (JUNOS) 10.0s19 (Tracking Number 1020802)," Draft